INDIANA DEPARTMENT OF NATURAL RESOURCES

IC 14-25-16

Water Resources Task Force

(1) Available Quantities and Sources of Water

Significant Water Withdrawal Facility IC 14-25-7-15

- Since 1986 the Division of Water has registered and monitored water withdrawal facilities with the capability of withdrawing more than 100,000 gallons water/day

Current Water Use

2008 STATE TOTALS				
	Withdrawals (BG)	*Capacity (MGD)*	*Withdrawals vs Capacity*	*Number*
Surface Intakes	3045.85	17955	46.5%	1399
Wells	225.08	4903	12.6%	6277
TOTAL	3270.9	22858	39.2%	7676
Facilities				3608

WATER USE CATEGORIES AND CODES

IR—AGRICULTURE/IRRIGATION (Crop & golf course irrigation, farm field drainage, agricultural services)

IN—INDUSTRY (Process water, cooling water, mineral extraction (except coal), quarry dewatering, waste assimilation)

PS—PUBLIC SUPPLY (Public water supply, drinking water/sanitary facilities)

EP—ENERGY PRODUCTION (Power generation, cooling water, coal mining, geothermal, oil recovery)

RU—RURAL USE (Livestock, fisheries)

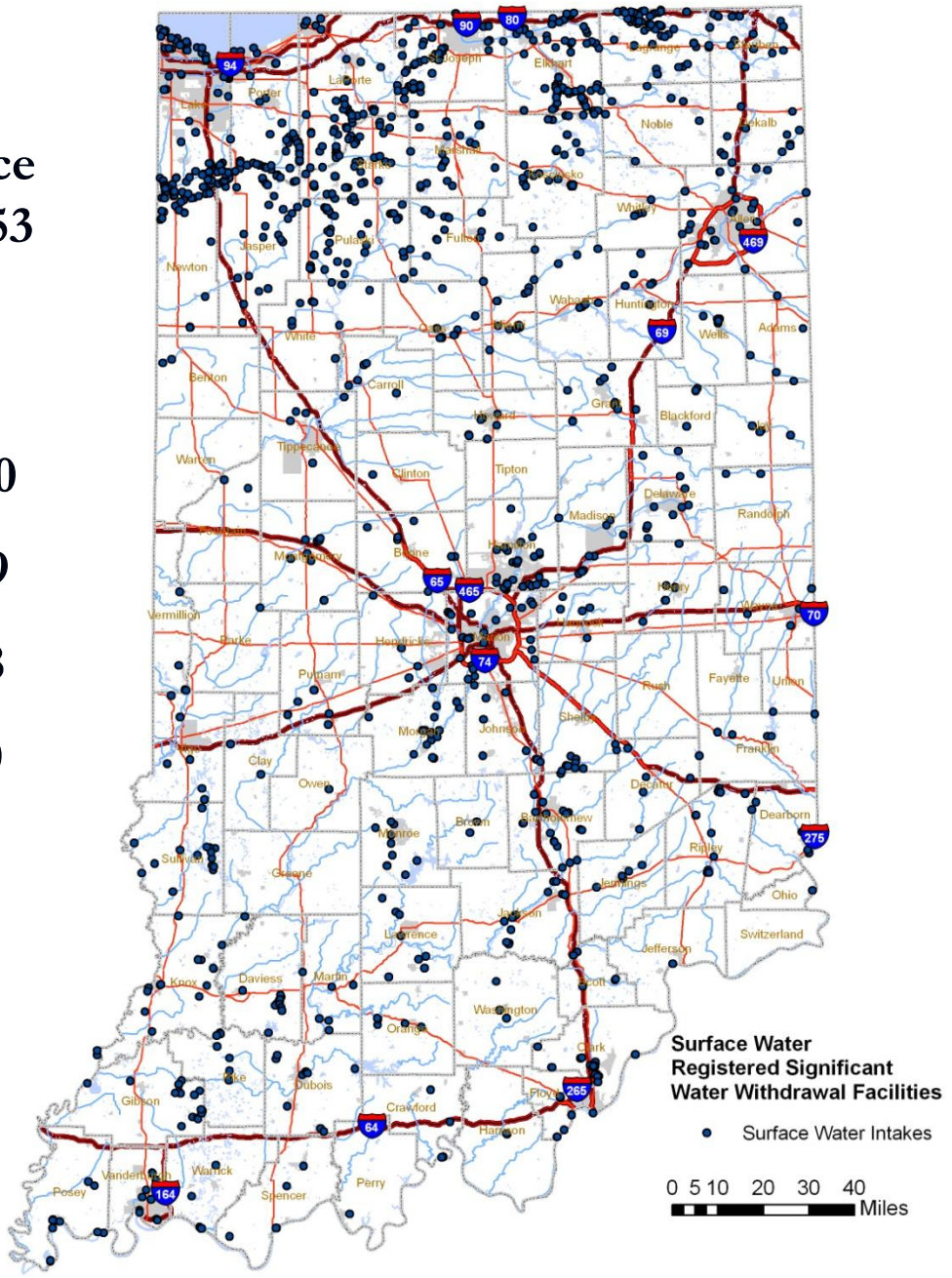
MI—MISCELLANEOUS (Fire protection, amusement parks, construction dewatering, dust control, pollution abatement, hydrostatic testing, recreational field drainage)

State of Indiana

2008 Total Registered Surface Intake Withdrawal 3045851.53 MG (million gallons)

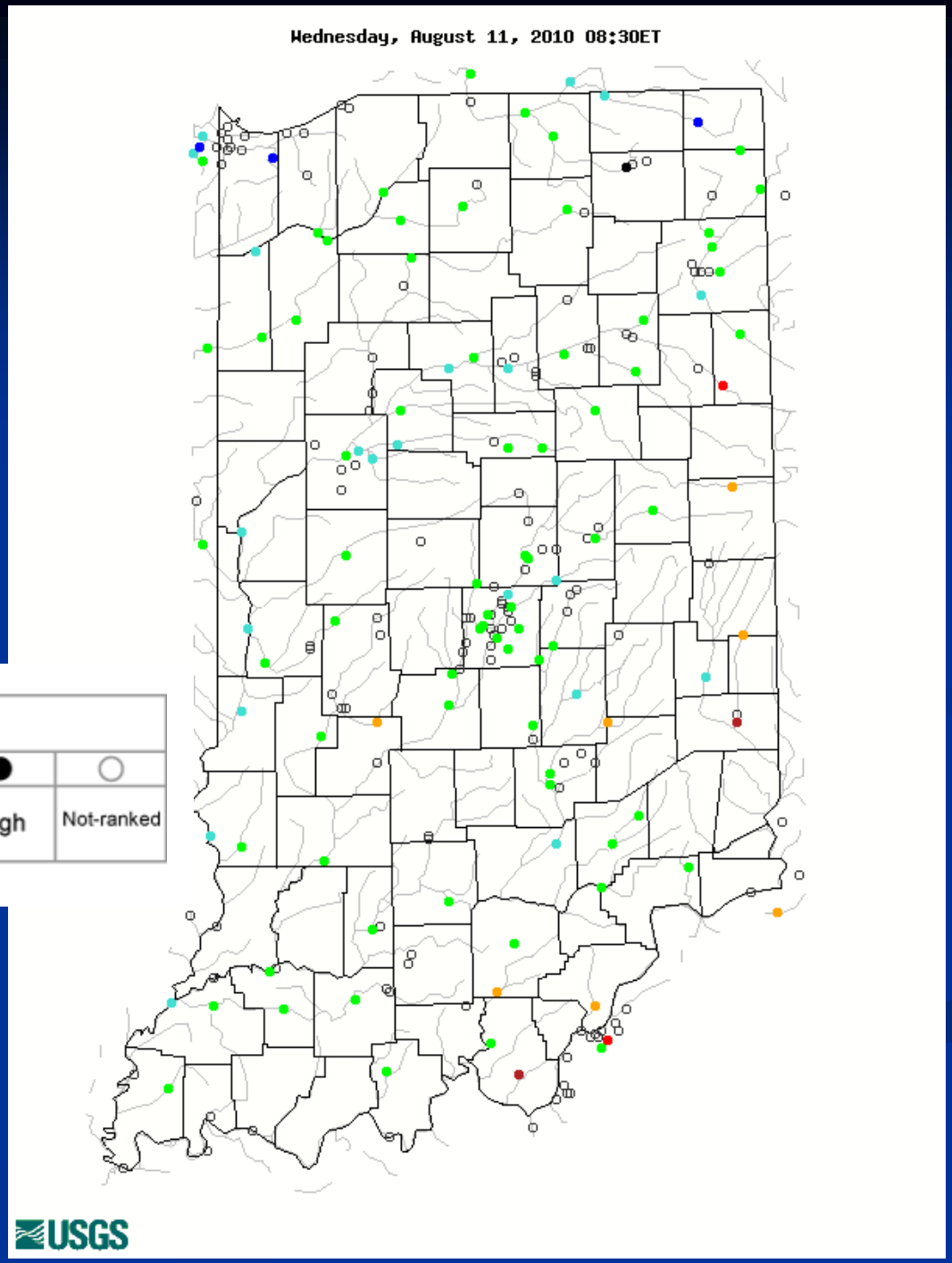
Surface Intakes (MG)

Energy	2,133,639.20
Industry	769,359.79
Public Supply	120,044.88
Agriculture	18,731.50
Miscellaneous	2,055.48
Rural	2,020.68



WaterWatch -- Current water resources conditions

Map of real-time streamflow compared to historical streamflow for the day of the year (Indiana)



Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

USGS – 165 stream gages

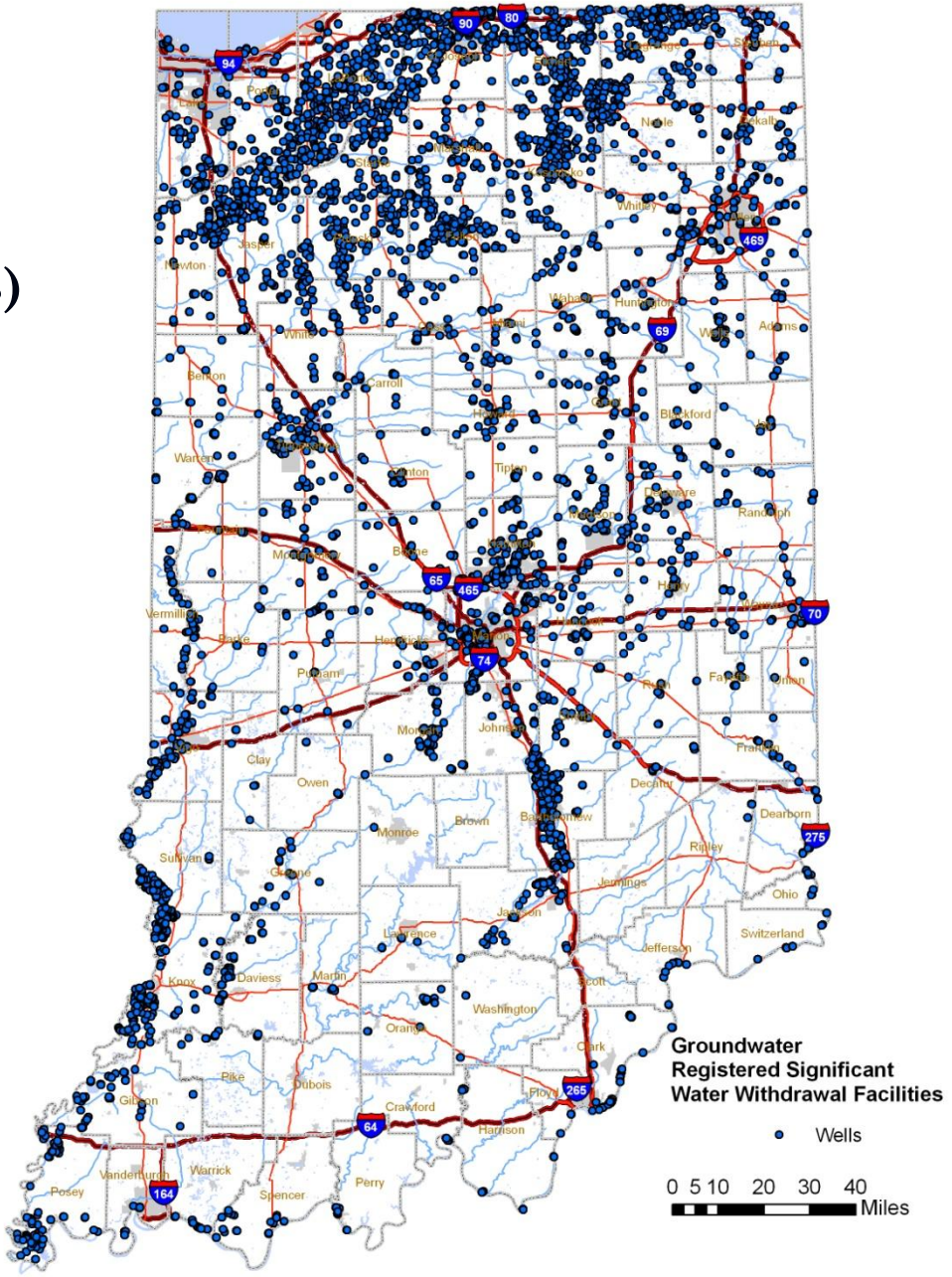
http://waterwatch.usgs.gov/?m=real&w=map&r=in

State of Indiana

2008 Total Registered Groundwater Withdrawal
224973.45 MG (million gallons)

Groundwater wells (MG)

Public Supply	**138,972.33**
Agriculture	**38,883.42**
Industry	**28,111.32**
Energy	**12,402.77**
Miscellaneous	**4,030.56**
Rural	**2,573.05**

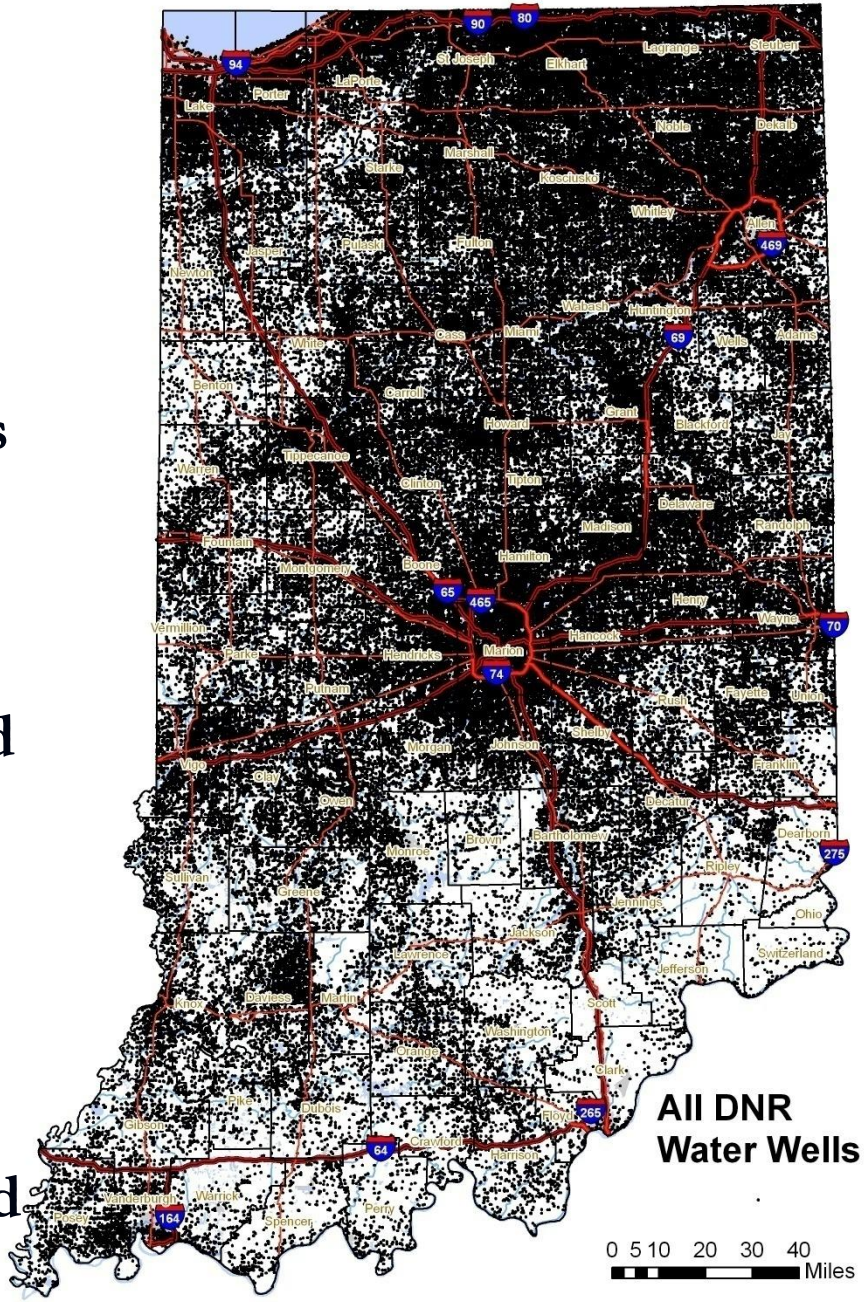


Indiana Domestic Self-Supplied Groundwater Use (2005)

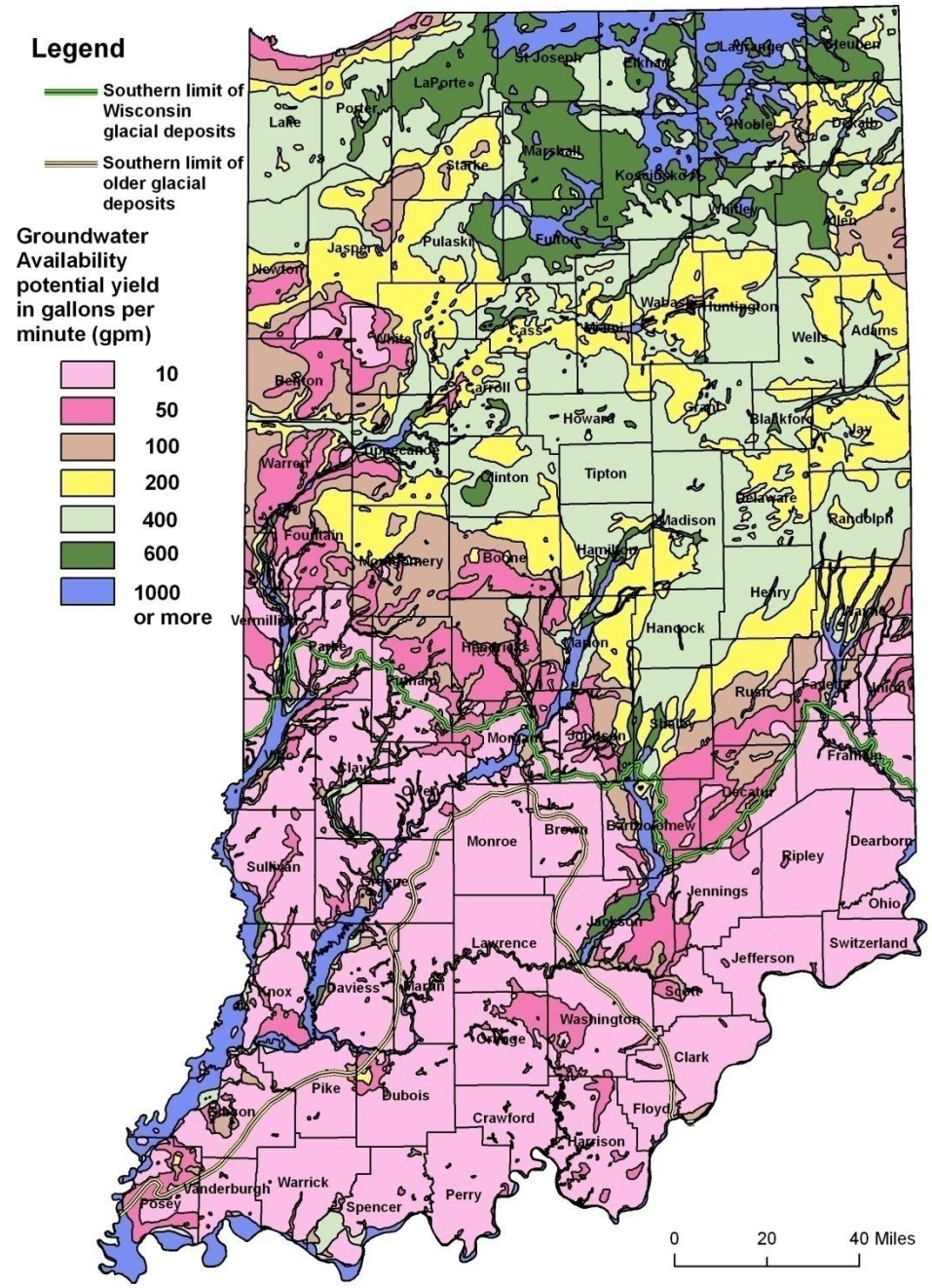
Domestic self-supplied groundwater withdrawals 45103 MG (million gallons) annually

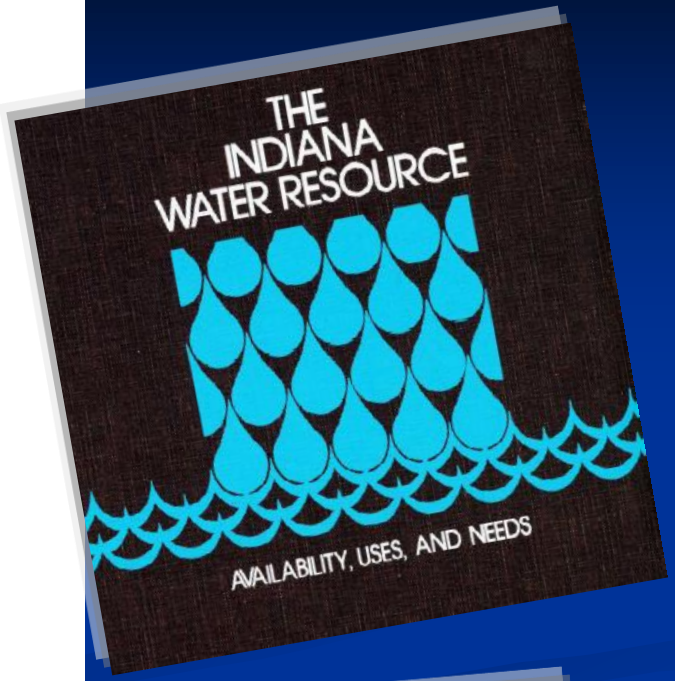
1,625,868 residents served by privately owned wells (25% of Indiana's population)

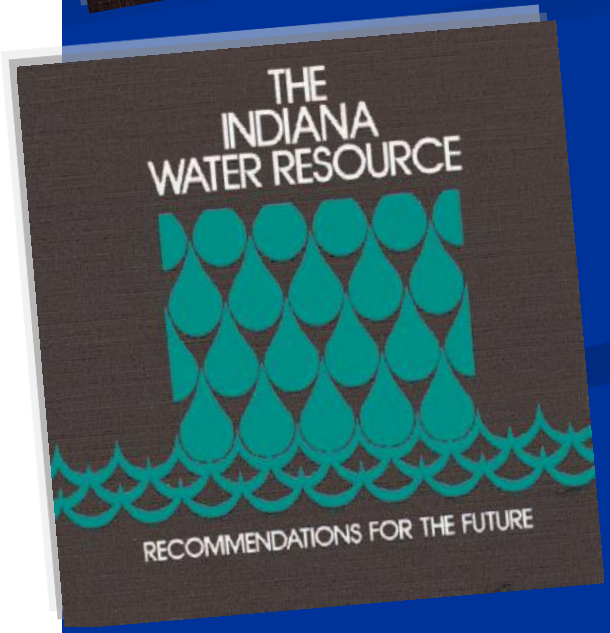
564,277 households served by privately owned individual wells



1980


Legend
Southern limit of Wisconsin glacial deposits
Southern limit of older glacial deposits
Groundwater Availability potential yield in gallons per minute (gpm)
10
50
100
200
400
600
1000 or more
St Joseph
LaPorte
Porter
Lake
Starke
Marshall
Kosciusko
Noble
DeKalb
Steuben
Whitley
Allen
Jasper
Pulaski
Fulton
Newton
Wabash
Huntington
Wells
Adams
White
Cass
Miami
Benton
Carroll
Howard
Grant
Blackford
Jay
Warren
Tippecanoe
Clinton
Tipton
Delaware
Randolph
Fountain
Madison
Hamilton
Boone
Henry
Vermillion
Hancock
Marion
Rush
Fayette
Union
Putnam
Shelby
Morgan
Johnson
Franklin
Clay
Owen
Decatur
Brown
Bartholomew
Monroe
Ripley
Dearborn
Sullivan
Greene
Jennings
Ohio
Jackson
Lawrence
Switzerland
Jefferson
Knox
Daviess
Martin
Scott
Washington
Orange
Clark
Pike
Dubois
Floyd
Gibson
Crawford
Harrison
Vanderburgh
Warrick
Perry
Posey
Spencer
0
20
40 Miles


THE
INDIANA
WATER RESOURCE
AVAILABILITY, USES, AND NEEDS


THE
INDIANA
WATER RESOURCE
RECOMMENDATIONS FOR THE FUTURE

Indiana Department of Natural Resources
Division of Water

- Surface water and groundwater availability
  - 66 County Aquifer Systems Maps and 6 Basin Studies completed (9 Basin Study counties adapted to county aquifer systems format)
  - USGS Gaging Network:
    - **165 Stream Gages**
    - **35 Monitoring Wells**
    - **11 Lake & Reservoir Gages**

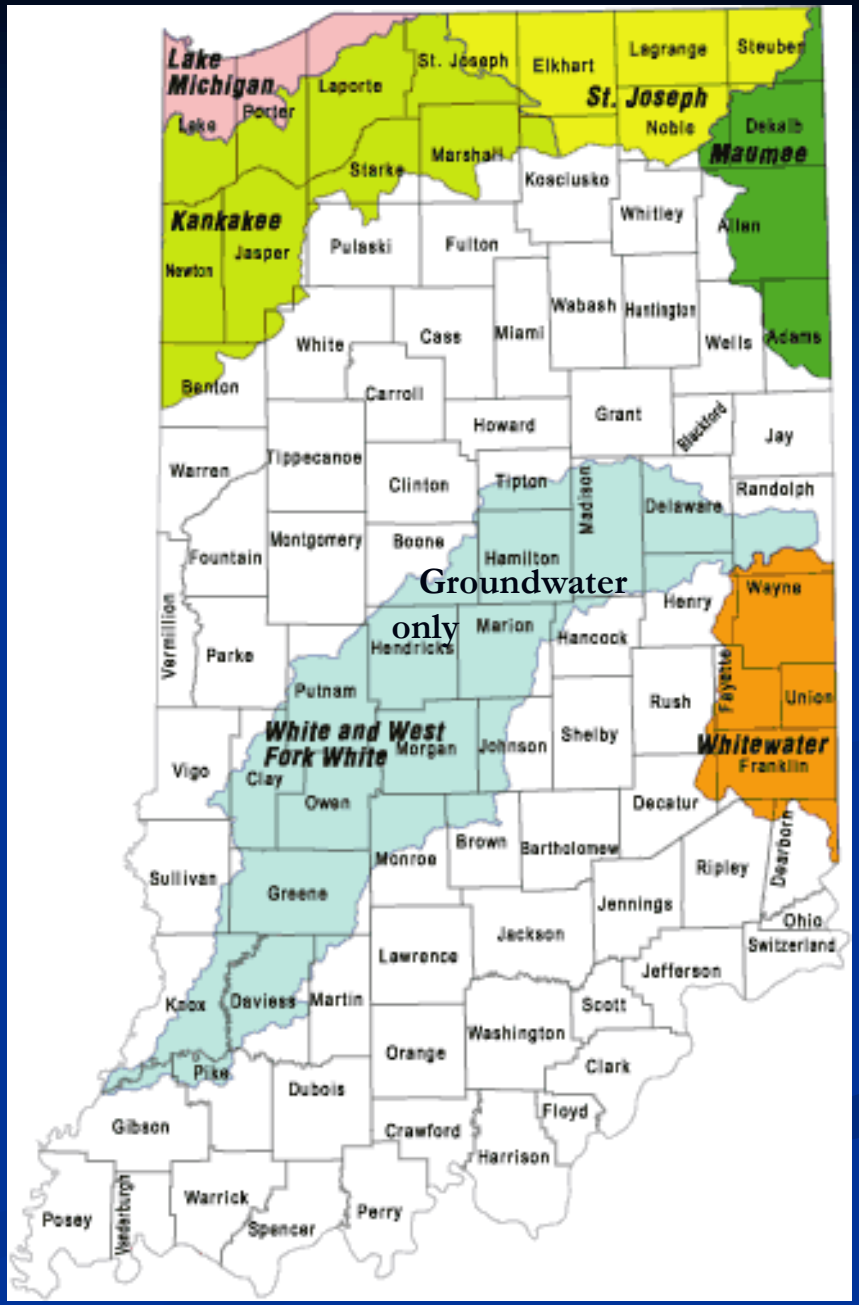
Water Resource Assessments (Basin Studies)

Six Completed

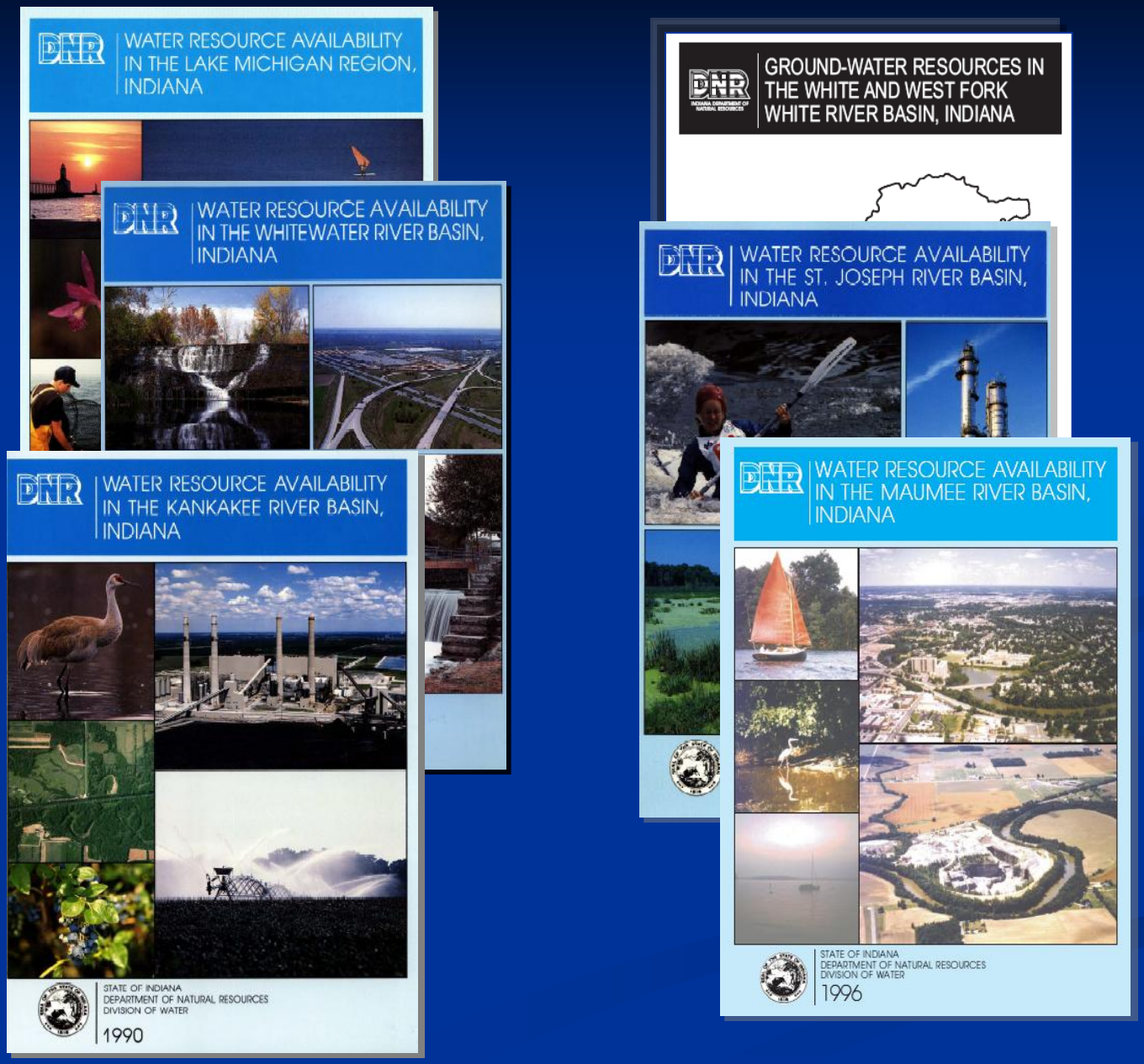
Surface water and groundwater regional comprehensive watershed reports for the state's water management basins.

Water resource development, such as supply and demand.

Socioeconomic setting; geologic framework; climatic features; surface-water hydrology and quality; flow duration curves and frequency analyses; groundwater hydrology and quality; potentiometric, transmissivity, and recharge maps; current and projected water use; potential for water-use conflicts; charts, graphs, and maps; text, tables, figures, and color plates.

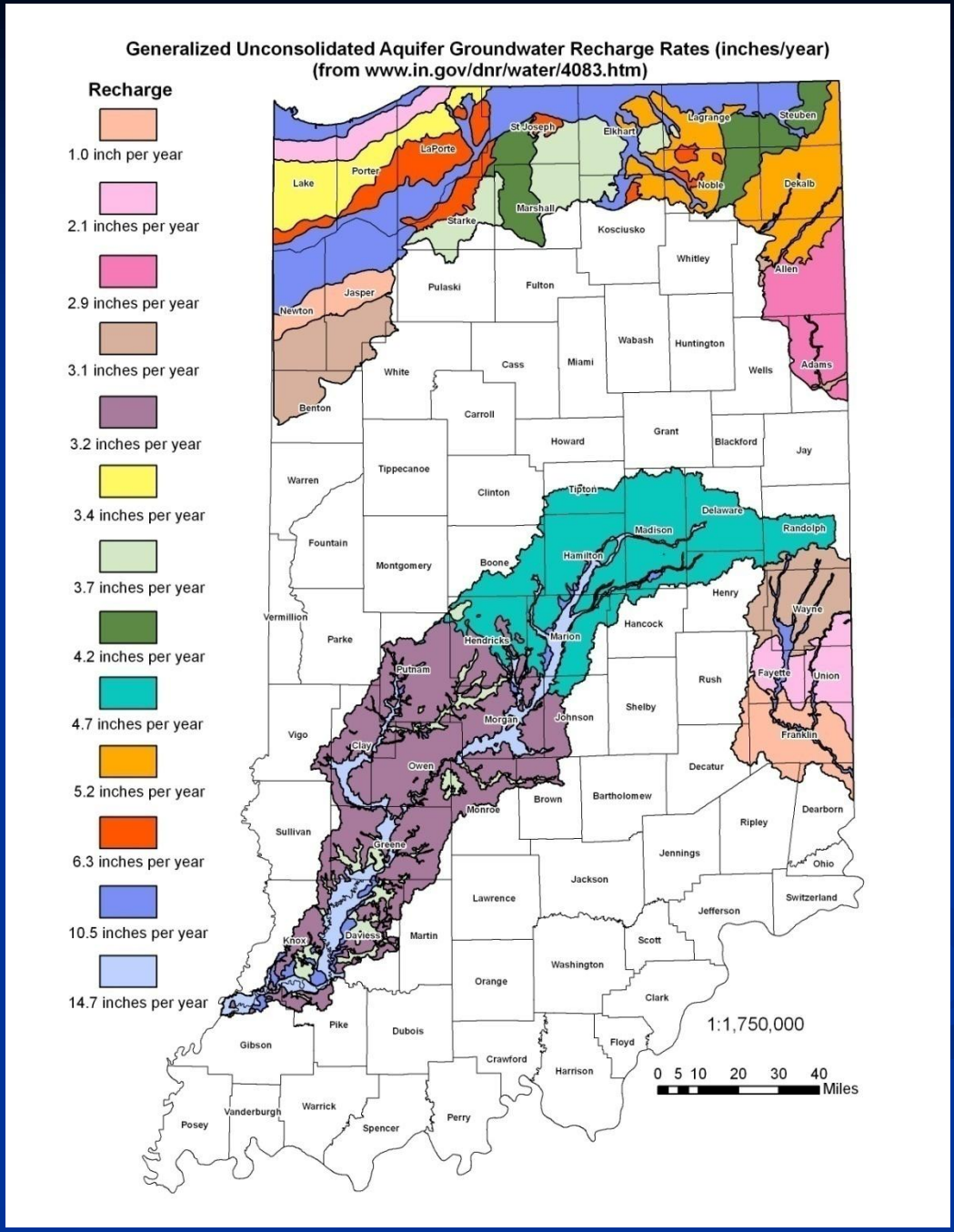


Water Resource Assessments (Basin Studies) Six Completed



Water Resource Assessments (Basin Studies groundwater recharge)

Six Completed

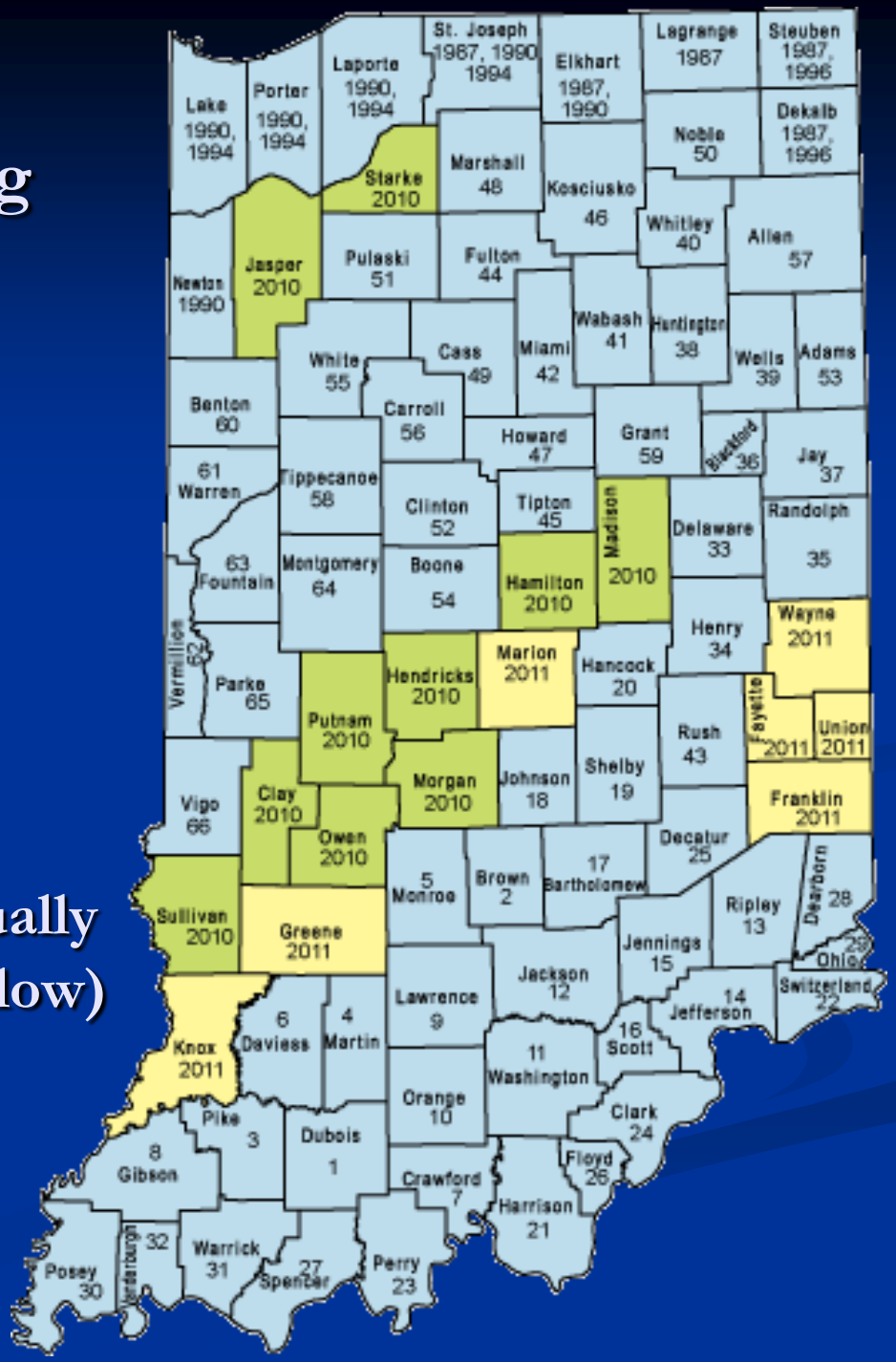


Division of Water
Aquifer Systems Mapping

66 Counties Completed
(shown in blue)

9 Basin Study counties
adapted to county format
(shown by Basin Study
completion dates)

6 – 10 Maps Completed Annually
(next shown in green and yellow)



UNCONSOLIDATED AQUIFER SYSTEMS OF JACKSON COUNTY, INDIANA

Dissected Till and Residuum Aquifer System

The Dissected Till and Residuum Aquifer System covers areas along the western edge of Jackson County, areas to the south and east of Brownstown (Brownstown Hills), and upland areas where thin glacially-derived sediments overlie bedrock. It is the most limited ground-water resource of the unconsolidated aquifer systems.

Unconsolidated deposits of this aquifer system that lie beyond the pre-Wisconsin glacial limit consist predominantly of thin, eroded bedrock residuum. Thickness of these sediments typically ranges from 3 to 25 feet, however, some thicker deposits occur in areas near the White River where colian sand deposits are present.

In upland areas within the limits of glaciation, the unconsolidated deposits of the Dissected Till and Residuum Aquifer System consist of pre-Wisconsin till and deposits of Wisconsin age (eolic, alluvium, lacustrine silt and clay, and colluvium. Thickness of these sediments ranges from 5 to 54 feet but is commonly 10 to 30 feet. These areas may also include scattered outwash sand and gravel deposits up to 5 feet thick.

The Division has no record of drilled wells producing from this system. In areas where only residuum is present, there is little chance of completing a successful well. Drillers prefer to complete wells in the underlying bedrock. However, east of Crothersville a few unlicensed large diameter bored (bucket-rig) wells report capacities up to 8 gpm (gallons per minute).

Because of the low permeability of the surface materials, this system is not very susceptible to contamination from surface sources.

Alluvial, Lacustrine, and Backwater Deposits Aquifer System

The Alluvial, Lacustrine, and Backwater Deposits Aquifer System is made up of heterogeneous bodies of alluvial, colluvial, and lacustrine materials within valley bottoms and terraces of some larger streams tributary to the East Fork White River.

Unconsolidated deposits within this system come from two sources. The first is alluvium deposited by streams along with colluvium eroded from valley walls and upland areas. The second source is glacial-lacustrine deposits formed as bodies of relatively stagnant water. These deposits are attributed to the White River valley becoming choked with outwash from receding glaciers. The outwash deposits effectively dammed the tributary streams, thus creating lakes in which fine-grained glacial-lacustrine deposits accumulated.

In Jackson County this system is mapped along a portion of the South Fork Salt Creek in the northwest part of the county, along selected portions of the East Fork Muscatatuck and Vernon Fork Muscatatuck Rivers in the east and southeast part of the county, and along small tributaries near the north central part of the county. Total thickness of unconsolidated materials overlying bedrock in this system is commonly less than 50 feet. Sand and gravel lenses, where present, are typically less than 5 feet thick and may be confined within the glacial-lacustrine deposits or directly overlie bedrock.

This aquifer system is a limited resource and the Division has no record of wells actually producing from these deposits. The potential does exist, however, for completion of adequate domestic wells in some places where unconsolidated deposits are thicker than 20 feet. In many places large diameter bucket-rig wells could meet the needs of domestic use.

This aquifer system is generally marked by surface deposits of silt silt and clay that have a low susceptibility to surface contamination.

Pre-Wisconsin Drift Aquifer System

The Pre-Wisconsin Drift Aquifer System is present along upland areas of the eastern two-thirds of Jackson County. In some counties the aquifer system is a limited resource, as evidenced by the lack of wells producing from the available unconsolidated deposits. However, in Jackson County thick glacial deposits having multiple sand and gravel units characterize this system. Where sand and gravel units are found, wells are completed in these deposits rather than the underlying bedrock.

Well depths in this system range from 19 to 194 feet but are typically from 30 to 60 feet. Potential aquifer materials include multiple, discontinuous subsoil sand and gravel units. Surficial clay deposits overlying aquifer materials range in thickness from 1 to 75 feet but commonly range from 10 to 40 feet. Potential aquifer units are described by drillers as sequences of "sand," "gravel," "quicksand," or "sand, gravel, and muck." The individual reported units are quite variable in thickness. Some are as thin as one foot to as thick as 70 feet but are commonly 5 to 25 feet thick. In some areas the Pre-Wisconsin Drift Aquifer System includes an upper sand or gravel unit that in most cases drillers will bypass in favor of a lower unit. Thickness of the upper unit ranges from 1 to 25 feet. The multiple sands and gravels are separated by clay thickness that range from 5 to 50 feet.

Domestic well yields range from 2 to 45 gpm but are typically 5 to 15 gpm. In some isolated areas where outwash deposits are thicker this system may be able to meet the needs of high-capacity users. Static water levels range from 10 to 60 feet below land surface but are typically 30 to 35 feet below land surface.

The Pre-Wisconsin Drift Aquifer System is generally not very susceptible to surface contamination because its till and sand and gravel units are overlain by thick till and lacustrine deposits.

Buried Valley

The Buried Valley Aquifer System consists of aquifer materials deposited in pre-glacial bedrock valleys. During valley development, layers of bedrock were eroded to create valleys that were subsequently filled with unconsolidated sediment of variable thickness. Although there are additional buried bedrock valleys in Jackson County, only the largest buried valleys that contain significant water-bearing sediments have been included as mapped units of the Buried Valley Aquifer System.

There is one main buried-bedrock valley system mapped in Jackson County. It includes an area that extends from approximately 2.5 miles south of Seymour and flans out to the south-southwest towards the Muscatatuck River. It cuts as deeply as 125 feet into rock of the Mississippian Borden Group.

Well depths range from 25 to 134 feet, but are typically 35 to 60 feet deep. Aquifer materials include multiple outwash deposits that vary in thickness. In some cases drillers report more than one outwash unit separated by clay materials that range from 4 to 20 feet thick. Upper outwash deposits range from 1 to 54 feet, but are typically 5 to 30 feet. Thickness of the lower outwash deposits ranges from 2 to 125 feet. Some well records also note clay underlying the lower outwash deposits. Most wells do not penetrate the full thickness of the aquifer system.

Domestic well yields range from 1 to 34 gpm, but are typically 4 to 20 gpm. Static water levels range from 2 to 81 feet below surface but are typically 15 to 30 feet below surface. The Division has no records of high-capacity wells in this aquifer system. However, in some areas this aquifer system has sufficient thickness of sand and gravel to support high-capacity wells.

Because its unconsolidated sand and gravel units are overlain by thick till and lacustrine deposits, the Buried Valley Aquifer System is generally not very susceptible to surface contamination.

White River and Tributaries Outwash Aquifer System

The White River and Tributaries Outwash Aquifer System is located throughout portions of central and eastern Jackson County. This system contains large volumes of outwash and alluvial deposits that filled the main river valley of the East Fork White River. As the glaciers melted the quantity of sediment was too large for the streams to transport. As a result, the increased sediment load was stored in the valley as alluvial and lateral accretionary deposits. As long as the retreating glaciers continued to provide sediments in quantities too large for the streams to transport, the main valley continued to be filled. These deposits formed the most prolific aquifer system in the county. Thickness of unconsolidated deposits overlying bedrock can be as much as 130 feet.

Aquifer materials include predominantly sand and gravel deposits that range from 4 to 96 feet thick but are more commonly from 20 to 60 feet thick. However, outwash areas mapped near the Muscatatuck and Vernon Fork Muscatatuck Rivers will include thinner aquifer deposits and more fine-grained sands and lacustrine sediments.

Well depths are typically 35 to 70 feet but can surface. In some areas 4 to 15 feet of clay or silt overlie the aquifer materials. Static water levels range from 4 to 20 feet below surface but are typically 5 to 15 feet. Because the level of ground water is near the surface, most of the aquifer materials are saturated.

This system has the greatest potential of any aquifer system in Jackson County and can meet the needs of domestic and high-capacity users. Domestic yields range from 7 to 30 gpm. There are 25 registered high-capacity facilities (66 wells) in this system. Typical yields for high-capacity wells range from 300 to 1000 gpm.

In areas that lack overlying clays, this aquifer system is highly susceptible to contamination from surface sources. Where the aquifer system is overlain by clay or silt deposits, the aquifer is moderately susceptible to surface contamination.

White River and Tributaries Outwash Aquifer Subsystem

The White River and Tributaries Outwash Aquifer Subsystem includes areas adjacent and parallel to the White River and Tributaries Outwash Aquifer System. This system typically occupies a higher topographic position than that of the outwash system and is marked by thinner outwash deposits overlain by sandy clay, clay, lacustrine, or eolian-derived loess and sand. These materials overlie aquifer deposits and range from 1 to 28 feet thick but are typically between 10 and 20 feet thick.

Total thickness of unconsolidated deposits overlying bedrock ranges from 27 to 130 feet. The reported thickness of aquifer materials within the unconsolidated deposits ranges from 1 to 74 feet but is typically between 10 and 25 feet. Well depths range from 32 to 134 feet below surface but are typically between 30 to 60 feet below surface. Many wells do not penetrate the full thickness of the aquifer system.

This aquifer system has the potential to meet the needs of domestic and some high-capacity users. There are three registered significant water withdrawal facilities (12 wells) that report yields ranging from 90 to 350 gpm. Domestic yields range from 5 to 20 gpm. Static water levels range from 2 to 30 feet below surface but are commonly between 10 and 25 feet below surface. In some well reports drillers refer to "wet" intervals suggesting saturated thickness that range from 2 to 27 feet.

Areas within this aquifer system that have overlying clay or silt deposits are moderately susceptible to surface contamination, whereas, areas that lack overlying clay or silt deposits are highly susceptible to contamination.

Location Map

SCALE 1:48,000

1 0.5 0 1 Mile

1 0.5 0 1 Kilometer

EXPLANATION

- Registered Significant Ground-water Withdrawal Well
- County Road
- State Road & US Highway
- Stream
- Lake & River
- State Managed Property
- Municipal Boundary

N W E S

DNR INDIANA DEPARTMENT OF NATURAL RESOURCES

Map generated by Jennifer McMillan
IDNR, Division of Water, Resource Assessment Section
March 2004

Map Use and Disclaimer Statement

We request that the following agency be acknowledged in products derived from this map: Indiana Department of Natural Resources, Division of Water.

This map was compiled by staff of the Indiana Department of Natural Resources, Division of Water using data believed to be reasonably accurate. However, a degree of error is inherent in all maps. This product is distributed "as-is" without warranties of any kind, either expressed or implied. This map is intended for use only at the published scale.

This map was created from several existing shapefiles: Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621) and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, Systems1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20023000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Streams27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Managed Areas 96 (polygon shapefile, various dates) was from IDNR. Unconsolidated Aquifer Systems coverage (Maier, 2004) was based on a 1:24,000 scale.

Unconsolidated Aquifer Systems of Jackson County, Indiana
by
Randal D. Maier
Division of Water, Resource Assessment Section

March 2004

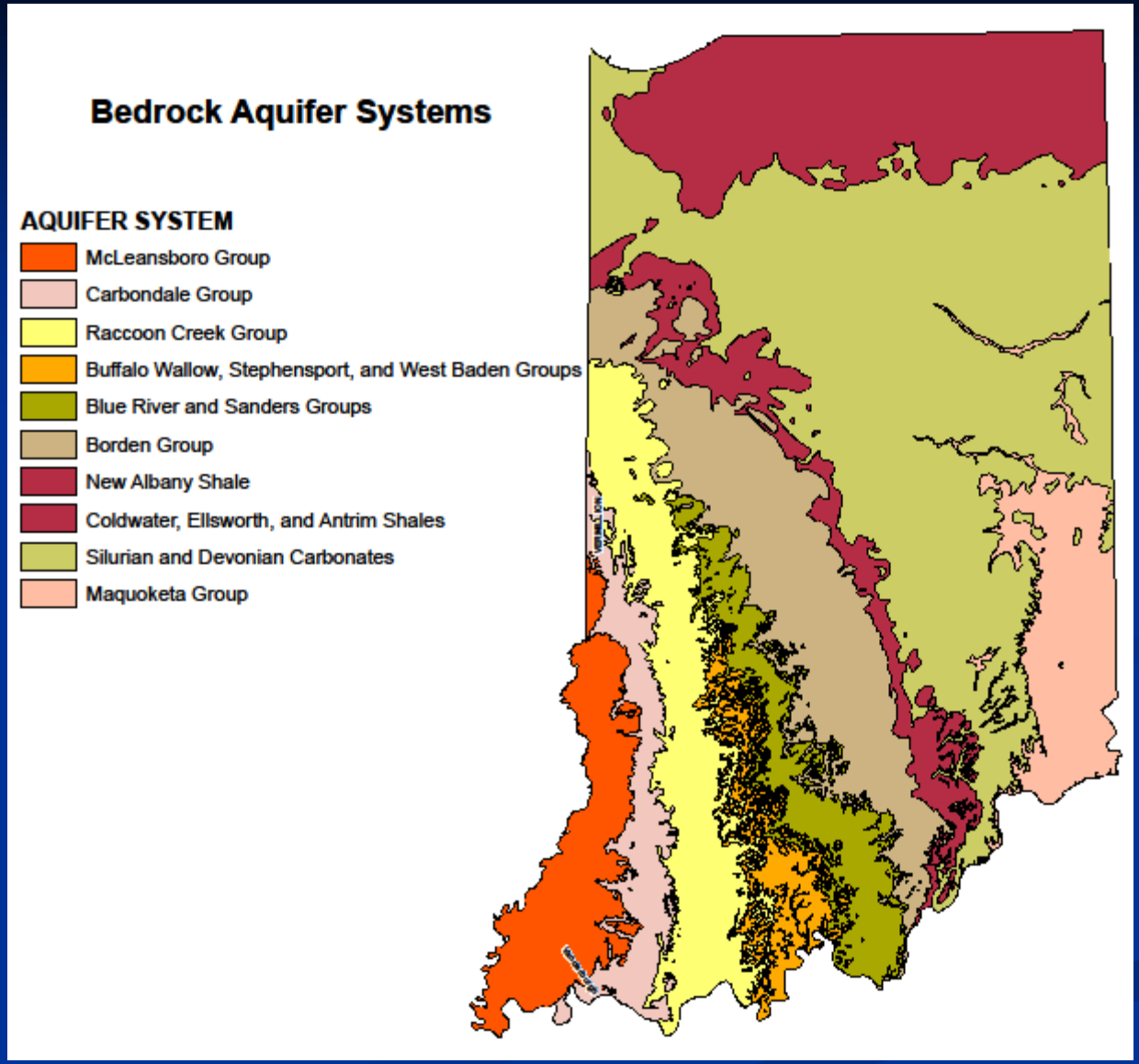
Aquifer Systems Mapping (1:48,000)
(current project, begun in 2003 and to be completed in 2011)

This series, created to provide e-products (such as GIS coverages) for quick release includes:

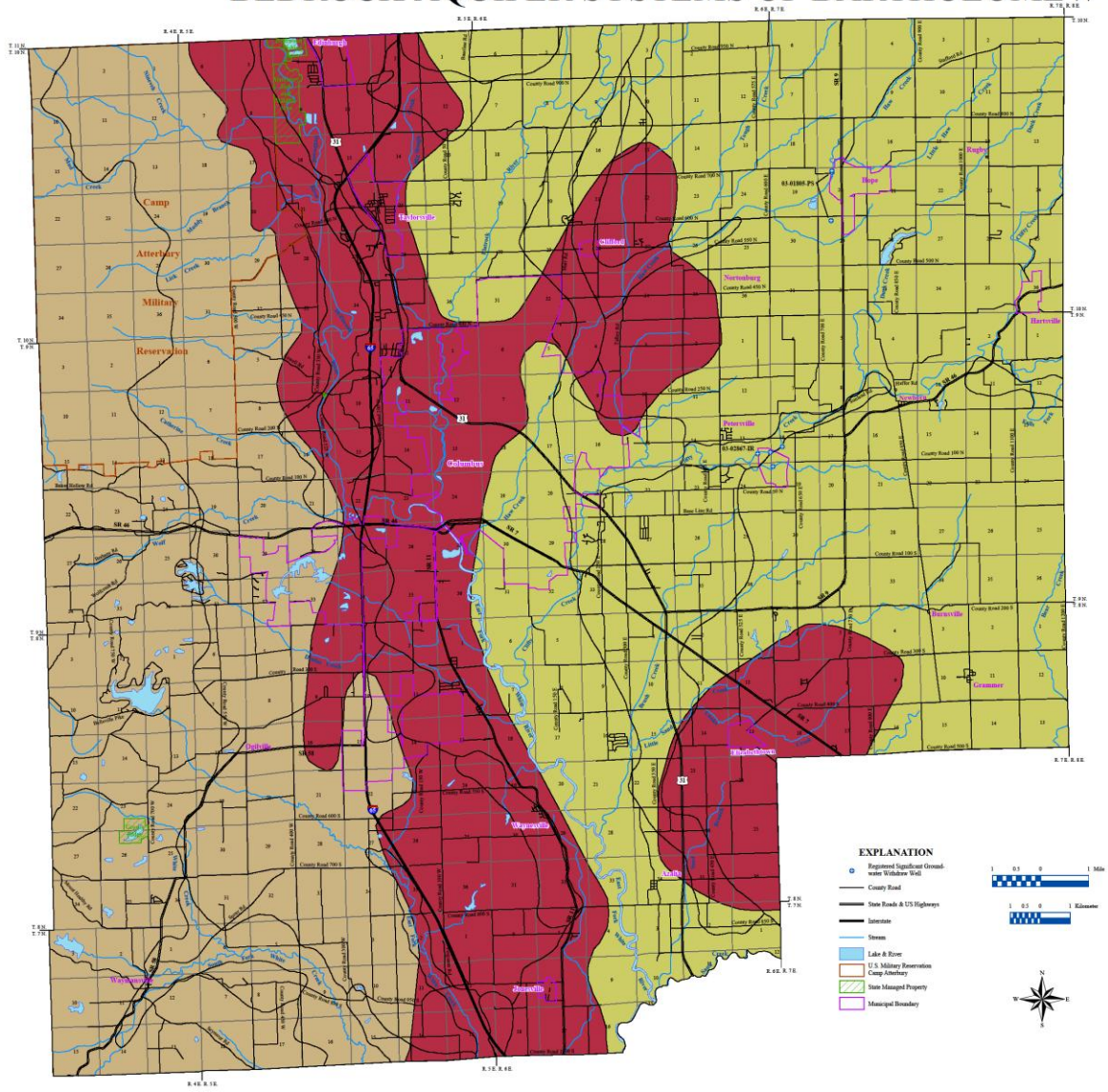
- **Maps and digital coverage of unconsolidated and bedrock aquifer systems**
- **Text describing aquifer thickness, depth, yield capability, static water levels, and contamination potential**
- **Table of registered significant groundwater withdrawal facilities**
- **GIS shapefiles of pertinent features that are important to groundwater hydrology, such as: karst features, dye tracing routes in karst areas, and coal-mined areas (surface and underground)**
- **Ultimately will combine to form a single consistent map and GIS coverage of unconsolidated aquifer systems of the state**
- **Click on the completed counties to view unconsolidated and bedrock aquifer systems maps. (Images, additional text, tables, and shapefiles are available for free download.)**

Bedrock Aquifer Systems names

Bedrock aquifer systems are attributed to the aquifer systems category from the Indiana Geological Survey shapefile: BEDROCK_GEOL_MM48_IN: Bedrock Geology of Indiana (Indiana Geological Survey, 1:500,000, Polygon Shapefile). The digital shapefile was derived with minor modifications from a preexisting published paper map (Gray, H.H., Ault, C.H., and Keller, S.J., 1987, Bedrock Geologic Map of Indiana, Indiana Department of Natural Resources, Geological Survey, Miscellaneous Map 48).



BEDROCK AQUIFER SYSTEMS OF BARTHOLOMEW COUNTY, INDIANA



The occurrence of bedrock aquifers depends on the original composition of the rocks and subsequent changes which influence the hydraulic properties. Post-depositional processes, such as jointing, fracturing, and solution activity, generally increase the hydraulic conductivity (permeability) of the upper portion of bedrock aquifer systems. Because permeability is generally greatest near the bedrock surface, bedrock units within the upper 100 feet are commonly the most productive aquifers.

Bedrock aquifer systems in the county are overlain by unconsolidated deposits of varying thickness. Most of the bedrock aquifers in the county are under confined conditions. In other words, the potentiometric surface (water level) in most wells completed in bedrock rises above the top of the water-bearing zone.

The yield of a bedrock aquifer depends on its hydraulic characteristics and the nature of the overlying deposits. Shale and glacial till act as aquitards, restricting recharge to underlying bedrock aquifers. However, fracturing and/or jointing may occur in aquitards, which can increase recharge to the underlying aquifers. Hydraulic properties of the bedrock aquifers are highly variable.

Three bedrock aquifer systems are identified for Bartholomew County. They are, from west to east, youngest to oldest: the Borden Group of Mississippian age, the New Albany Shale of Devonian and Mississippian age, and the Silurian and Devonian Carbonates.

The susceptibility of bedrock aquifer systems to surface contamination is largely dependent on the type and thickness of the overlying sediments. Just as recharge for bedrock aquifers cannot exceed that of overlying unconsolidated deposits, susceptibility to surface contamination will not exceed that of overlying deposits. However, because the bedrock aquifer systems may have complex fracturing systems, once a contaminant has been introduced into a bedrock aquifer system, it will be difficult to track and remediate.

Mississippian – Borden Group Aquifer System

In Bartholomew County, the Mississippian age Borden Group Aquifer System is present in most of the western third of the county. This bedrock aquifer system is composed mostly of siltstone and shale, but fine-grained sandstones are also common. Although carbonates are rare, discontinuous interbedded limestone lenses are present, mostly in the upper portion of the group.

The Borden Group in Bartholomew County is up to 600 feet thick and generally thins as it dips to the southwest beneath younger rock formations. Depth to bedrock is typically 20 to 75 feet. Well depths in the Borden Group Aquifer System range from 30 to 400 feet. However, wells are typically completed at depths of 40 to 85 feet and typically penetrate 5 to 50 feet of bedrock.

Because the Borden Group is generally not very productive, it is typically used only where overlying deposits do not contain an aquifer. The Borden Group is commonly described as an aquitard, and yields of wells completed in it are usually quite limited. Many wells, however, are able to produce sufficient water for domestic purposes by relying on extra well-bore storage created by drilling relatively large diameter and relatively deep wells. The yield of most domestic wells completed in the group is less than 10 gallons per minute (gpm). Dry wells have been reported. Static water levels are typically between 10 and 35 feet below surface.

The Borden Group is composed primarily of fine-grained materials that limit the movement of ground water. In areas where overlying clay materials are present, the Borden Group Aquifer System is at low risk to contamination from the surface or near surface. However, in some areas the bedrock is overlain by outwash materials that may be capped by thin deposits of eolian derived loess, colluvium, or lacustrine silt. These areas are at moderate risk to contamination.

Devonian and Mississippian – New Albany Shale Aquifer System

The New Albany Shale Aquifer System in Bartholomew County is an extremely limited ground-water resource. This aquifer system consists mostly of brownish-black carbon-rich shale, greenish-gray shale, and minor amounts of dolomite and dolomitic quartz sandstone.

The New Albany Shale in Bartholomew County can be up to 120 feet thick and generally thickens as it dips southwest beneath younger strata. The outcrop/subcrop area is present along an approximate north-south band of the west-central portion of the county and along the eastern south-central edge of the county. Depth to bedrock is typically 30 to 75 feet. Completed well depths are typically 60 to 130 feet and penetrate 10 to 70 feet of bedrock.

This aquifer system is considered a poor ground-water resource and is generally described as an aquitard. However, a few domestic wells have been completed in this system. Typical yields are 10 gpm or less with some dry holes reported. Static water levels typically range from 10 to 40 feet below surface.

The permeability of shale materials is considered low. The New Albany Shale Aquifer System, therefore, has a low susceptibility to contamination introduced at or near the surface.

Silurian and Devonian Carbonates Aquifer System

In Bartholomew County, the outcrop/subcrop area of the Silurian and Devonian Carbonates Aquifer System is present along most of the eastern half of the county. This system includes middle-Devonian age carbonates (limestone and dolomite) of the Muscatatuck Group and the underlying carbonates of Silurian age. Because carbonate units of Silurian and Devonian age are similar, and cannot easily be distinguished on the basis of water well records, they are considered as a single water-bearing system.

The Muscatatuck Group in Bartholomew County is up to 75 feet thick and generally increases in thickness as it dips to the southwest beneath younger rock formations. The underlying Silurian carbonates are up to 150 feet thick and also thicken as they dip to the southwest. The combined thickness, therefore, is up to 225 feet with depth to bedrock typically 20 to 50 feet below surface. Completed well depths range from 20 to 365 feet, but are typically 60 to 110 feet. The typical amount of bedrock penetrated ranges from 25 to 70 feet.

In Bartholomew County, water wells in the Silurian and Devonian Carbonates Aquifer System are capable of meeting the needs of domestic and some high-capacity users. Typical domestic yields range from 5 to 20 gpm. Two facilities with high-capacity wells have reported yields that range from 90 to 450 gpm. Static water levels range from 15 to 40 feet below surface with some drillers reporting "flowing" wells.

Most of the Silurian and Devonian Carbonates Aquifer System is overlain by thick clay deposits. Therefore, most of the aquifer system is considered at low risk to contamination. However, in some areas the aquifer system is overlain by unconsolidated deposits composed primarily of sand and gravel outwash materials. These deposits may have thin clay at the surface. In such areas, the aquifer system is considered at moderate to high risk.

EXPLANATION

- Registered Significant Ground-water Withdraw Well
- County Road
- State Roads & US Highways
- Interstate
- Stream
- Lake & River
- U.S. Military Reservation Camp Atterbury
- State Managed Property
- Municipal Boundary

1 0.5 0 1 Mile

1 0.5 0 1 Kilometer

N W E S

Location Map

INDIANA DEPARTMENT OF NATURAL RESOURCES

Map Use and Disclaimer Statement

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This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020623), Land Survey Lines of Indiana (polygon shapefile, 20020821) and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale, except the Bedrock Geology of Indiana (polygon shapefile, 20020318) which was at a 1:500,000 scale. Draft road shapefiles, System1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Streams27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Managed Areas 98 (polygon shapefile, various dates) was from IDNR.

Map generated by Jennifer E. McMillan and Joseph L. Phillips
IDNR, Division of Water, Resource Assessment Section

Bedrock Aquifer Systems of Bartholomew County, Indiana

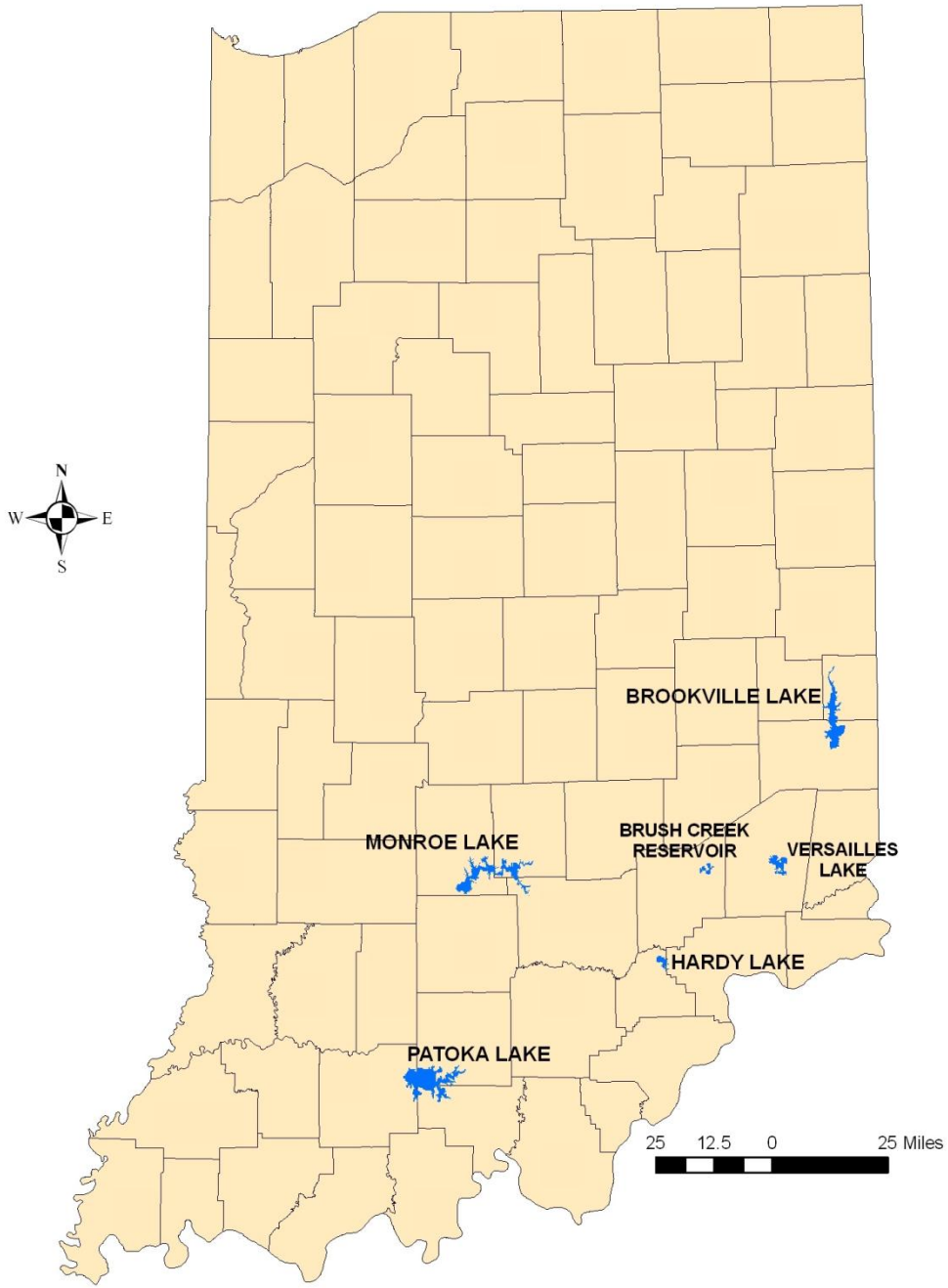
by
Randal D. Maier
Division of Water, Resource Assessment Section

December 2004

IC 14-25-2
Minimum Stream Flow and Water Sale Contracts

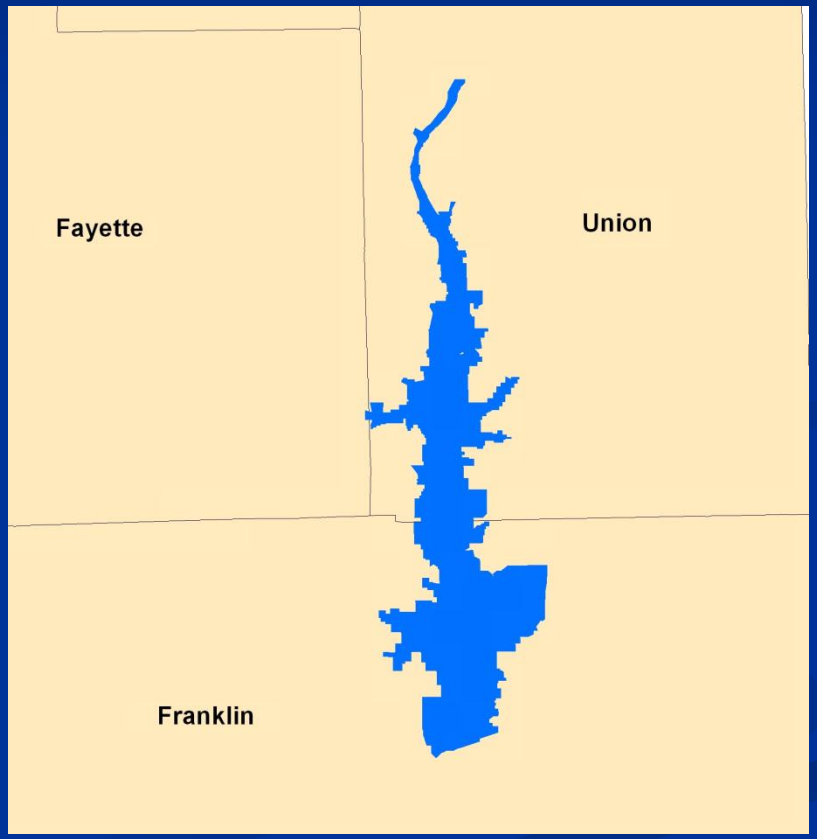
- State of Indiana may sell water for water supply purposes:
  - from reservoir impoundments financed by the state.
  - for a period of not more than 50 years.
  - at the rate of thirty-three dollars ($33) per one million (1,000,000) gallons of water.

State-Owned Water Supply Storage



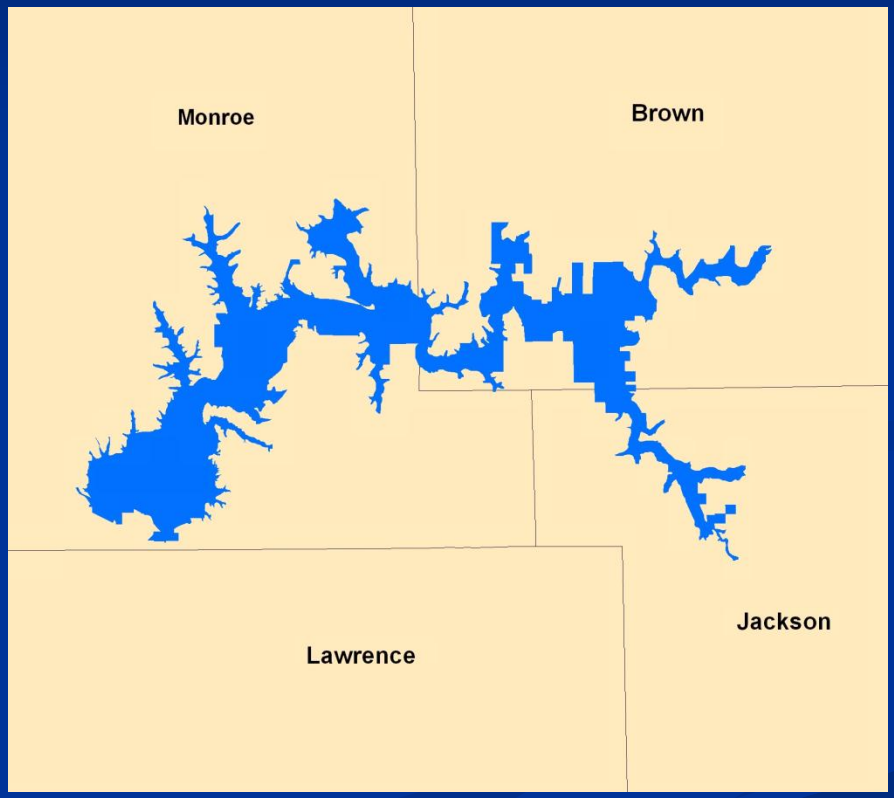
Brookville Lake

- **Water Supply Storage:**
  740 – 713 ft.
  (29,098 MG)
- **Supply Committed:**
  243 MG (0.8%)
- **Annual Use (5 yr. ave.):**
  99.8 MG
- **Firm Yield:**
  82 MGD

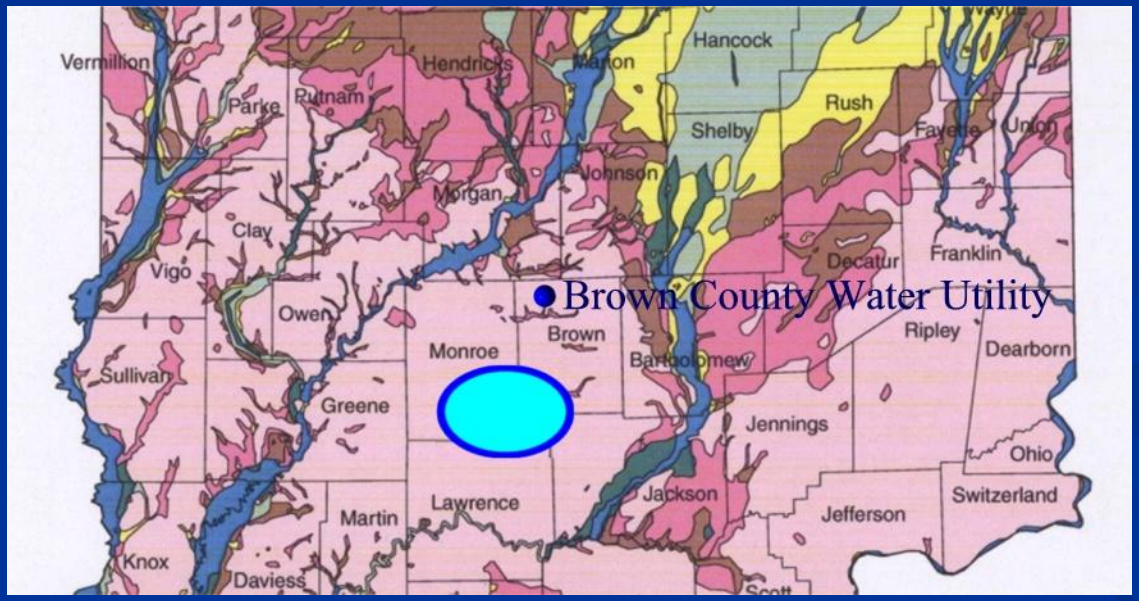


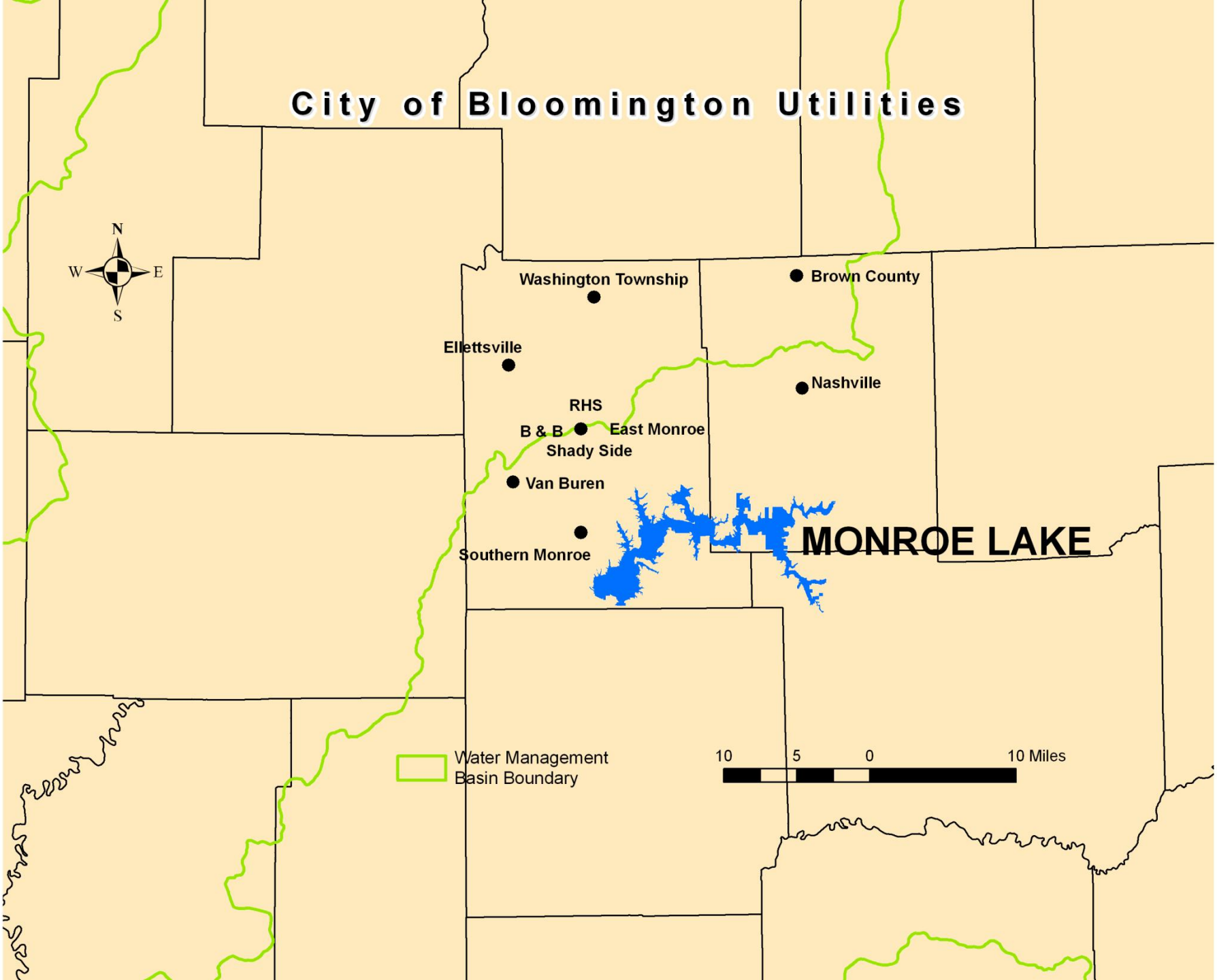
Monroe Lake

- **Water Supply Storage:**
  538 – 515 ft.
  (52,136 MG)
- **Supply Committed:**
  10,967 MG (21.0%)
- **Annual Use (5 yr. ave.):**
  5,395 MG
- **Firm Yield:**
  122 MGD



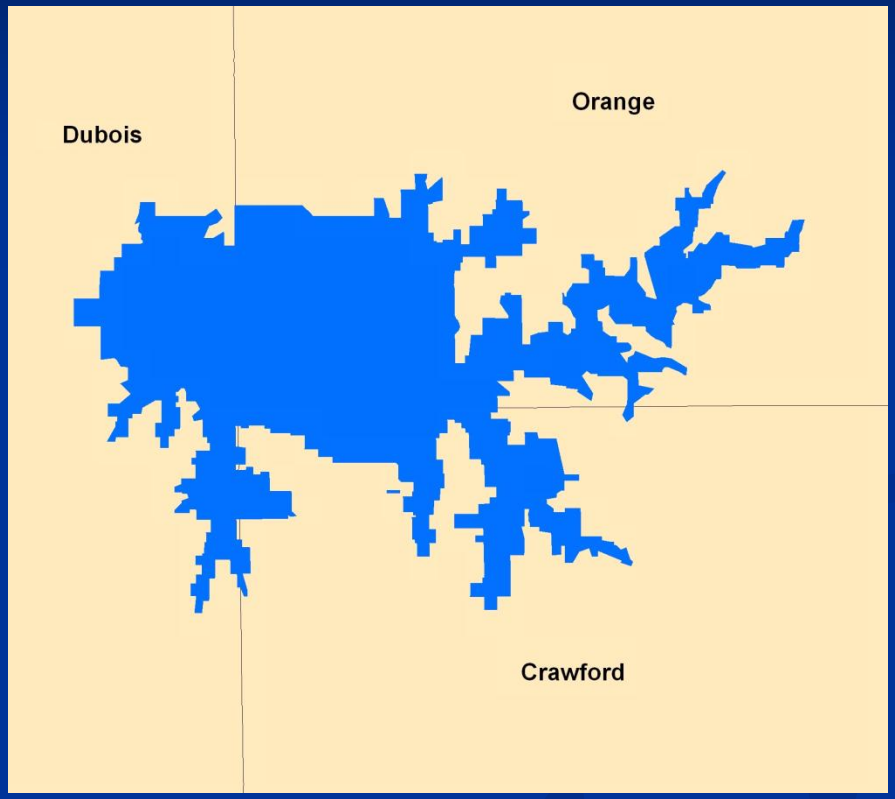
Monroe Area Groundwater Availability



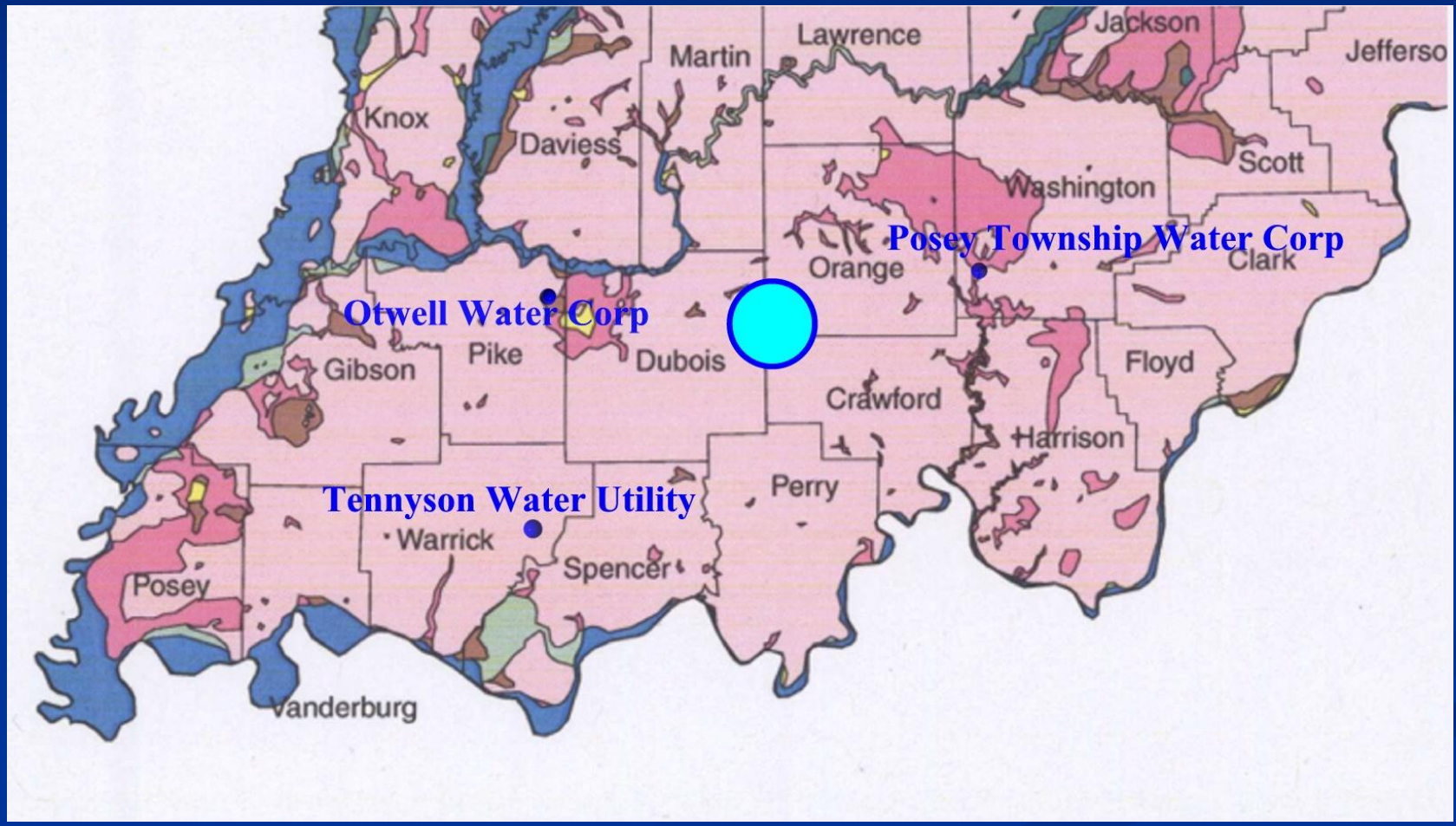

City of Bloomington Utilities
N
W
E
S
Washington Township
Brown County
Ellettsville
Nashville
RHS
B & B
East Monroe
Shady Side
Van Buren
Southern Monroe
MONROE LAKE
Water Management
Basin Boundary
10
5
0
10 Miles

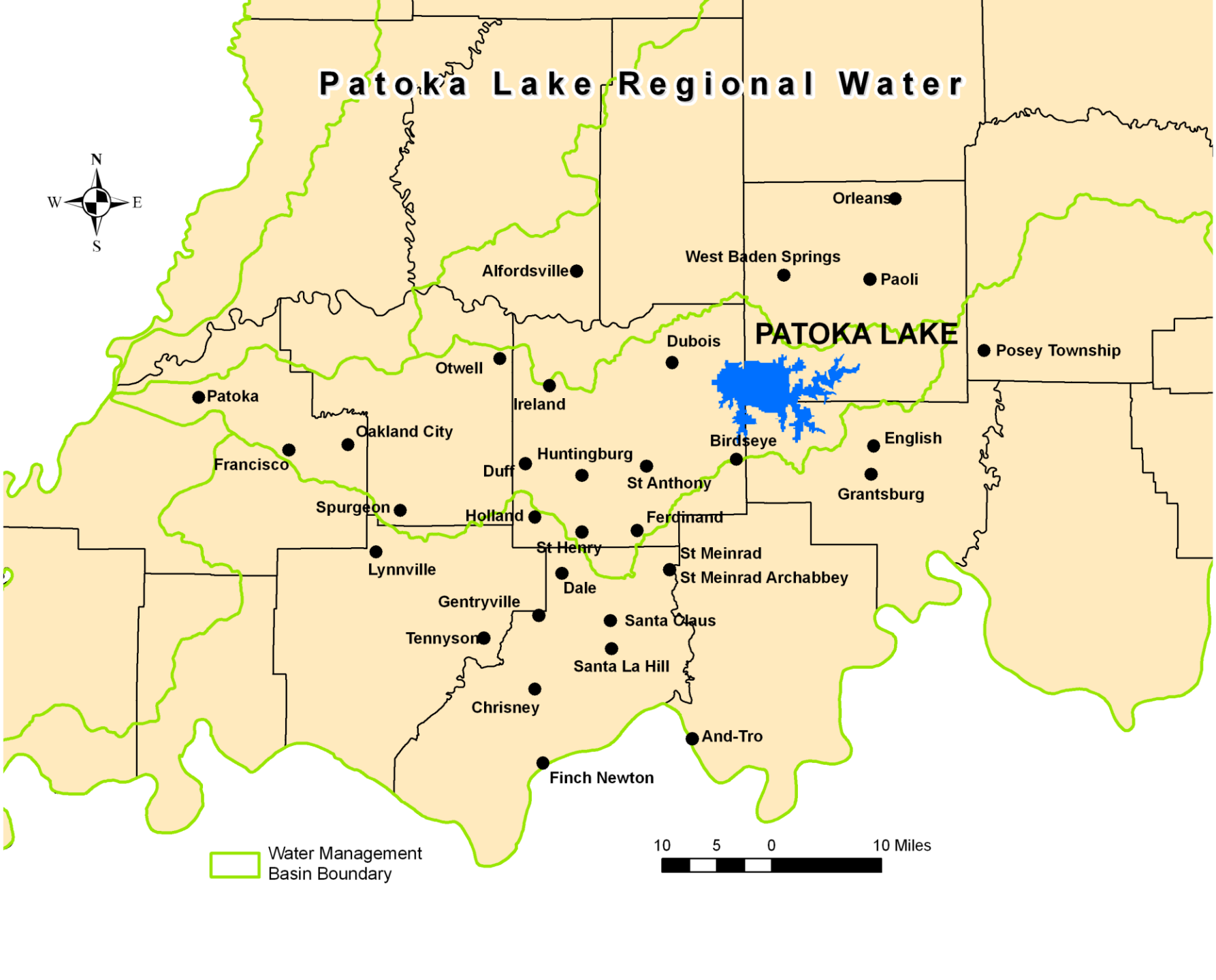
Patoka Lake

- **Water Supply Storage:**
  536 – 506 ft.
  (34,949 MG)
- **Supply Committed:**
  7,300 MG (20.8%)
- **Annual Use (5 yr. Ave.):**
  2,251 MG
- **Firm Yield:**
  78 MGD



Patoka Area Groundwater Availability




Patoka Lake Regional Water
N
W
E
S
Orleans
West Baden Springs
Paoli
Alfordsville
PATOKA LAKE
Dubois
Posey Township
Otwell
Ireland
Patoka
Oakland City
Francisco
Huntingburg
Duff
St Anthony
Birdseye
English
Grantsburg
Spurgeon
Holland
Ferdinand
St Henry
St Meinrad
St Meinrad Archabbey
Lynnville
Dale
Gentryville
Santa Claus
Tennyson
Santa La Hill
Chrisney
And-Tro
Finch Newton
Water Management
Basin Boundary
10 5 0 10 Miles

Questions and Comments

Ground Water Assessment Maps & Publications

www.in.gov/dnr/water/3468.htm

Click any County
to see all
Maps and Publications
(free for viewing, printing,
and downloading)